Exhibit 300: Capital Asset Plan and Business Case Summary

Part I: Summary Information And Justification (All Capital Assets)

Section A: Overview

1. Date of Submission: 2011-02-25

2. Agency: 026

3. Bureau: 00

4. Name of this Investment: NASA Cloud Services, Powered by Nebula TM (Formerly NASA Nebula)

5. Unique Project (Investment) Identifier (UPI): 026-00-02-00-01-0002-00

6. What kind of investment will this be in FY 2012?: Full Acquisition

- Planning
- Full Acquisition
- Operations and Maintenance
- Mixed Life Cycle
- Multi-Agency Collaboration

7. What was the first budget year this investment was submitted to OMB? FY2012

8.

a. **Provide a brief summary of the investment and justification, including a brief description of how this closes in part or in whole an identified agency performance gap, specific accomplishments expected by the budget year and the related benefit to the mission, and the primary beneficiary(ies) of the investment.**

This OCIO investment in the NASA Cloud Services, Powered by NebulaTM project will provide highly-scalable, high-performance, on-demand cloud-based infrastructure (IaaS), platform (PaaS), application (SaaS), and data (DaaS) services to NASA scientists, with initial installations at ARC and GSFC. NASA Cloud Services is viewed an Agency cross-cutting capability. The convergence of cloud and virtualization technologies enables NASA to provide an exciting new computer service offering for NASA missions and projects. Infrastructure as a Service, or IaaS, will be easily and quickly available as a utility, similar to water and power, freeing users to focus on their applications and missions instead of IT infrastructure. Cloud technologies enable vast quantities of computer resources, resources that are typically deployed independently, to be pooled and shared. The pooling allows any one user to tap seemingly infinite quantities of compute and storage resource without long lead times and the support burden, transforming capital expenditures and operational expenditures into utility-based usage expenditures. Prior to the availability of NASA Cloud Services, the individuals frequently had no alternative other than to provide and support their own dedicated infrastructure. NASA Platform as a Service, or PaaS, will provide a fully integrated web application development and hosting environment operating on top of IaaS services, lifting the burden of supporting both infrastructure and web application middleware from software developers. Selected Software as a Service capabilities planned for the future will enable customers to immediately take advantage of popular applications with no involvement by IT support personnel. Lastly, Data as a Service (DaaS) is planned as major component of NASA Cloud Services to help the Agency better manage, process, disseminate, and serve its data within the NASA Cloud Services environment. DaaS integrates a revised Agency data access strategy with novel cloud-based data access and storage capabilities to support scientists, engineers, and projects in their quest for knowledge and discovery through their execution of NASA’s mission. DaaS capabilities will provide NASA with enhanced cloud-based data utilization capabilities that enable an increased level of collaboration with partners and information sharing with the public, all within a secure and interoperable clould computing environment.

b. **Provide any links to relevant websites that would be useful to gain additional information on the**

investment including links to GAO and IG reports.

Title	Link
NONE	

9.

a. **Provide the date of the Agency's Executive/Investment Committee approval of this investment.** 2010-09-02

b. **Provide the date of the most recent or planned approved project charter.** 2010-04-22

10. Contact information?

a. **Program/Project Manager Name:** *
Phone Number: *
Email: *

b. **Business Function Owner Name (i.e. Executive Agent or Investment Owner):** James Williams
Phone Number: *
Email: *

11. What project management qualifications does the Project Manager have? (choose only one per FAC-P/PM or DAWIA): Project manager assigned but qualification status review has not yet started.

- Project manager has been validated according to FAC-P/PM or DAWIA criteria as qualified for this investment.
- Project manager qualifications according to FAC-P/PM or DAWIA criteria is under review for this investment.
- Project manager assigned to investment, but does not meet requirements according to FAC-P/PM or DAWIA criteria.
- Project manager assigned but qualification status review has not yet started.
- No project manager has yet been assigned to this investment.

Section B: Summary of Funding (Budget Authority for Capital Assets)

1.

Table I.B.1: Summary of Funding
(In millions of dollars)
(Estimates for BY+1 and beyond are for planning purposes only and do not represent budget decisions)

	PY-1 and earlier	PY 2010	CY 2011 (CY Continuing Resolution)	BY 2012	BY+1 2013	BY+2 2014	BY+3 2015	BY+4 and beyond	Total
Planning:	*	*	*	*	*	*	*	*	*
Acquisition:	*	*	*	*	*	*	*	*	*
Planning & Acquisition Government FTE Costs	*	*	*	*	*	*	*	*	*
Subtotal Planning & Acquisition(DME):	*	*	*	*	*	*	*	*	*
Operations & Maintenance:	*	*	*	*	*	*	*	*	*
Disposition Costs (optional):	*	*	*	*	*	*	*	*	*
Operations, Maintenance, Disposition Government FTE Costs	*	*	*	*	*	*	*	*	*
Subtotal O&M and Disposition Costs (SS):	*	*	*	*	*	*	*	*	*
TOTAL FTE Costs	*	*	*	*	*	*	*	*	*
TOTAL (not including FTE costs):	*	*	*	*	*	*	*	*	*
TOTAL (including FTE costs):	*	*	*	*	*	*	*	*	*
Number of FTE represented by	*	*	*	*	*	*	*	*	*

Table I.B.1: Summary of Funding
(In millions of dollars)
(Estimates for BY+1 and beyond are for planning purposes only and do not represent budget decisions)

	PY-1 and earlier	PY 2010	CY 2011 (CY Continuing Resolution)	BY 2012	BY+1 2013	BY+2 2014	BY+3 2015	BY+4 and beyond	Total
Costs:									

2. Insert the number of years covered in the column "PY-1 and earlier": 1

3. Insert the number of years covered in the column "BY+4 and beyond": *

4. If the summary of funding has changed from the FY 2011 President's Budget request, briefly explain those changes:
*

Section C: Acquisition/Contract Strategy (All Capital Assets)

1.

Table I.C.1 Contracts Table

Contract Status	Contracting Agency ID	Procurement Instrument Identifier (PIID)	Indefinite Delivery Vehicle (IDV) Reference ID	Solicitation ID	Alternative financing	EVM Required	Ultimate Contract Value (M)	Type of Contract/Task Order (Pricing)	Is the contract a Performance Based Service Acquisition (PBSA)?	Effective date	Actual or expected End Date of Contract/Task Order	Extent Competed	Short description of acquisition
Awarded		NNA08AF13C			*	*		Cost Plus Fixed Fee	Y	2008-09-01	2011-05-31	N	AMES CONSOLIDATED INFORMATION TECHNOLOGY SERVICES 2 (ACITS 2) CONTRACT FOR IT SUPPORT AT AMES RESEARCH CENTER INCLUDES THE FOLLOWING IT SYSTEMS AND FACILITY SUPPORT, NETWORK COMMUNICATIONS SYSTEM SUPPORT, BUSINESS SYSTEMS SUPPORT, SCIENTIFIC COMPUTIN

Table I.C.1 Contracts Table

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													G SYSTEMS SUPPORT AND
Awarded		NNG07DA08B			*	*		Firm Fixed Price	X	2007-05-01		Y	SEWP 4 AWARD CLASS 1 The SEWP contracts offer a wide range of advanced technology including UNIX-, Linux-, and Windows-based desktops and servers, along with peripherals, network equipment, storage devices, security tools, software, and other IT products and product based

Table I.C.1 Contracts Table

Contract Status	Contracting Agency ID	Procurement Instrument Identifier (PIID)	Indefinite Delivery Vehicle (IDV) Reference ID	Solicitation ID	Alternative financing	EVM Required	Ultimate Contract Value (M)	Type of Contract/Task Order (Pricing)	Is the contract a Performance Based Service Acquisition (PBSA)?	Effective date	Actual or expected End Date of Contract/Task Order	Extent Competed	Short description of acquisition
													solutions.

2. If earned value is not required or will not be a contract requirement for any of the contracts or task orders above, explain why:
*

3.

a. **Has an Acquisition Plan been developed? If yes, please answer the questions that follow** *
b. **Does the Acquisition Plan reflect the requirements of FAR Subpart 7.1** *
c. **Was the Acquisition Plan approved in accordance with agency requirements** *
d. **If "yes," enter the date of approval?** *
e. **Is the acquisition plan consistent with your agency Strategic Sustainability Performance Plan?** *
f. **Does the acquisition plan meet the requirements of EOs 13423 and 13514?** *
g. **If an Acquisition Plan has not been developed, provide a brief explanation.**
*

Part II: IT Capital Investments

Section A: General

1.

a. **Confirm that the IT Program/Project manager has the following competencies: configuration management, data management, information management, information resources strategy and planning, information systems/network security, IT architecture, IT performance assessment, infrastructure design, systems integration, systems life cycle, technology awareness, and capital planning and investment control.** no

b. **If not, confirm that the PM has a development plan to achieve competencies either by direct experience or education.** yes

2. Describe the progress of evaluating cloud computing alternatives for service delivery to support this investment. various commercial cloud services and products were examined and trade studies were performed. nasa cloud services will provide capabilities that address the limitations and constraints associated with using commercial cloud services and products.

3. Provide the date of the most recent or planned Quality Assurance Plan 2011-10-26

4.

a. **Provide the UPI of all other investments that have a significant dependency on the successful implementation of this investment.**

b. **If this investment is significantly dependent on the successful implementation of another investment(s), please provide the UPI(s).**

5. An Alternatives Analysis must be conducted for all Major Investments with Planning and Acquisition (DME) activities and evaluate the costs and benefits of at least three alternatives and the status quo. The details of the analysis must be available to OMB upon request. Provide the date of the most recent or planned alternatives analysis for this investment. 2009-08-19

6. Risks must be actively managed throughout the lifecycle of the investment. The Risk Management Plan and risk register must be available to OMB upon request. Provide the date that the risk register was last updated. 2010-04-22

Section B: Cost and Schedule Performance

Table II.B.1. Comparison of Actual Work Completed and Actual Costs to Current Approved Baseline:

Description of Activity	DME or SS	Agency EA Transition Plan Milestone Identifier	Planned Cost ($M)	Actual Cost ($M)	Planned Start Date	Actual Start Date	Planned Completion Date	Actual Completion Date	Planned Percent Complete	Actual Percent Complete
FY09 Conduct IaaS Pilot with three customer projects	DME	*	$3.1	$3.1	2008-10-01	2008-10-01	2009-09-30	2009-09-20	100.00%	100.00%
FY10 Conduct IaaS 1.0 Beta	DME	*	$2.1	$2.1	2009-10-01	2009-10-01	2010-08-31	2010-09-13	100.00%	100.00%
FY10 Go Production with IaaS 1.0	DME	*	$1.1	$1.5	2009-10-01	2009-10-01	2010-09-30		100.00%	98.00%
FY10 Expand IaaS infrastructure	DME	*	$4.3	$4.3	2009-10-01	2009-10-01	2010-08-31	2011-02-25	100.00%	100.00%
FY10 Release IaaS as open source	DME	*	$0.8	$0.8	2009-10-01	2009-10-01	2010-07-31	2010-07-31	100.00%	100.00%
FY10 Demonstrate PaaS Platform	DME	*	$0.2	$0.2	2009-10-01	2009-10-01	2010-09-30	2010-10-04	100.00%	100.00%
FY11 Conduct IaaS 2.0 Beta and go production	DME	*	$3.3	$0.7	2010-10-01	2010-10-01	2011-05-31		21.00%	21.00%
FY11 Expand IaaS infrastructure	DME	*	$3.1	$0.0	2010-10-01	2010-10-01	2011-06-30		1.00%	1.00%
FY11 Conduct PaaS 1.0 Beta	DME	*	$3.0	$0.0	2010-10-01	2010-10-01	2011-09-30		1.00%	1.00%
FY11 Demonstrate DaaS Platform	DME	*	$1.8	$0.0	2010-10-01	2010-10-01	2011-09-30		1.00%	1.00%
FY12 Conduct IaaS 3.0 Beta and go	DME	*	*	*	2011-10-01	*	2012-01-31	*	*	*

Table II.B.1. Comparison of Actual Work Completed and Actual Costs to Current Approved Baseline:

Description of Activity	DME or SS	Agency EA Transition Plan Milestone Identifier	Planned Cost ($M)	Actual Cost ($M)	Planned Start Date	Actual Start Date	Planned Completion Date	Actual Completion Date	Planned Percent Complete	Actual Percent Complete
production										
FY12 Expand IaaS infrastructure	DME	*	*	*	2011-10-01	*	2012-06-30	*	*	*
FY12 Conduct PaaS 2.0 beta and go production	DME	*	*	*	2011-10-01	*	2012-09-30	*	*	*
FY12 Go Production with DaaS 1.0	DME	*	*	*	2011-10-01	*	2012-09-30	*	*	*
FY13 Expand IaaS Infrastructure and develop IaaS/PaaS/SaaS/ DaaS Enhancements	SS	*	*	*	2012-10-01	*	2013-09-30	*	*	*
FY14 Expand IaaS Infrastructure and develop IaaS/PaaS/SaaS/ DaaS Enhancements	SS	*	*	*	2013-10-01	*	2014-09-30	*	*	*
FY15 Expand IaaS Infrastructure and develop IaaS/PaaS/SaaS/ DaaS Enhancements	SS	*	*	*	2014-10-01	*	2015-09-30	*	*	*
FY16 Expand IaaS Infrastructure and develop IaaS/PaaS/SaaS/ DaaS EnhancementsFY	SS	*	*	*	2015-10-01	*	2016-09-30	*	*	*

Table II.B.1. Comparison of Actual Work Completed and Actual Costs to Current Approved Baseline:

Description of Activity	DME or SS	Agency EA Transition Plan Milestone Identifier	Planned Cost ($M)	Actual Cost ($M)	Planned Start Date	Actual Start Date	Planned Completion Date	Actual Completion Date	Planned Percent Complete	Actual Percent Complete
13 Expand IaaS Infrastructure and develop IaaS/PaaS Enhancements										

2. If the investment cost, schedule, or performance variances are not within 10 percent of the current baseline, provide a complete analysis of the reasons for the variances, the corrective actions to be taken, and the most likely estimate at completion.

3. For mixed lifecycle or operations and maintenance investments an Operational Analysis must be performed annually. Operational analysis may identify the need to redesign or modify an asset by identifying previously undetected faults in design, construction, or installation/integration, highlighting whether actual operation and maintenance costs vary significantly from budgeted costs, or documenting that the asset is failing to meet program requirements. The details of the analysis must be available to OMB upon request. Insert the date of the most recent or planned operational analysis.

4. Did the Operational analysis cover all 4 areas of analysis: Customer Results, Strategic and Business Results, Financial Performance, and Innovation?

Section C: Financial Management Systems

Table II.C.1: Financial Management Systems

System(s) Name	System acronym	Type of Financial System	BY Funding
*	*	*	*

Section D: Multi-Agency Collaboration Oversight (For Multi-Agency Collaborations only)

Table II.D.1. Customer Table:

Customer Agency	Joint exhibit approval date

NONE

Table II.D.2. Shared Service Providers

Shared Service Provider (Agency)	Shared Service Asset Title	Shared Service Provider Exhibit 53 UPI (BY 2011)
*	*	*

Table II.D.3. For IT Investments, Partner Funding Strategies ($millions):

Partner Agency	Partner exhibit 53 UPI (BY 2012)	CY Monetary Contribution	CY "In-Kind" Contribution	CY Fee-for-Service	BY Monetary Contribution	BY "In-Kind" Contribution	BY Fee-for-Service

NONE

Table II.D.4. Legacy Systems Being Replaced

Name of the Legacy Investment of Systems	Current UPI	Date of the System Retirement
*	*	*

Section E: Performance Information

Table I.E.1a. Performance Metric Attributes

Measurement Area (For IT Assets)	Measurement Grouping (For IT Assets)	Measurement Indicator	Reporting Frequency	Unit of Measure	Performance Measure Direction	Baseline	Year Baseline Established for this measure (Origination Date)
Processes and Activities	Costs	Cost relative to commercial equivalent (H=higher, S=Same, L=Lower)	annual	H, S, L	Decrease	H	2010-08-13

Fiscal Year	Target	Actual Results	Target "Met" or "Not Met"	Last Updated
2010	H	H	Met	2010-09-17
2011	H			2010-09-17
2012	S			2010-09-17

Measurement Area (For IT Assets)	Measurement Grouping (For IT Assets)	Measurement Indicator	Reporting Frequency	Unit of Measure	Performance Measure Direction	Baseline	Year Baseline Established for this measure (Origination Date)
Technology	Load levels	Count Hyperthreaded Cores Installed	annual	Number	Increase	2752	2010-08-11

Fiscal Year	Target	Actual Results	Target "Met" or "Not Met"	Last Updated
2010	2752	2752	Met	2010-09-17
2011	7552			2010-09-17
2012	21952			2010-09-17

Measurement Area (For IT Assets)	Measurement Grouping (For IT Assets)	Measurement Indicator	Reporting Frequency	Unit of Measure	Performance Measure Direction	Baseline	Year Baseline Established for this measure (Origination Date)
Processes and Activities	Productivity	Count of servers administered by a single Nebula systems administrator	annual	Number	Increase	29	2010-08-13

Fiscal Year	Target	Actual Results	Target "Met" or "Not Met"	Last Updated
2010	29	29	Met	2010-09-17
2011	79			2010-09-17
2012	229			2010-09-17

Technology	Load levels	Internodal network speed	annual	Gigabits per second (Gbps)	Increase	10 Gbps	2010-08-13

Fiscal Year	Target	Actual Results	Target "Met" or "Not Met"	Last Updated
2010	10 Gbps	10 Gbps	Met	2010-09-17
2011	10 Gbps			2010-09-17
2012	10 Gpbs			2010-09-17

* - Indicates data is redacted.